



U.S. Department of Energy
Energy Efficiency and Renewable Energy

How to develop an Energy Project

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Custom Energy, LLC



What we'll do today...

- Our agreement
- The big question
- Topics for your planning consideration
- Industry experience – over 1400 projects worth
- Resources for your success



Our agreement

- We ask questions openly and expect honest answers.
- We don't play games with each other.
- We have a business discussion.
- Our Responsibilities:
 - Mine: provide useful information, don't "sell" anything.
 - Yours: provide your best information and be engaged.
 - Ours: Have fun!!!!



What is Covey's Second Habit of Highly Effective People?

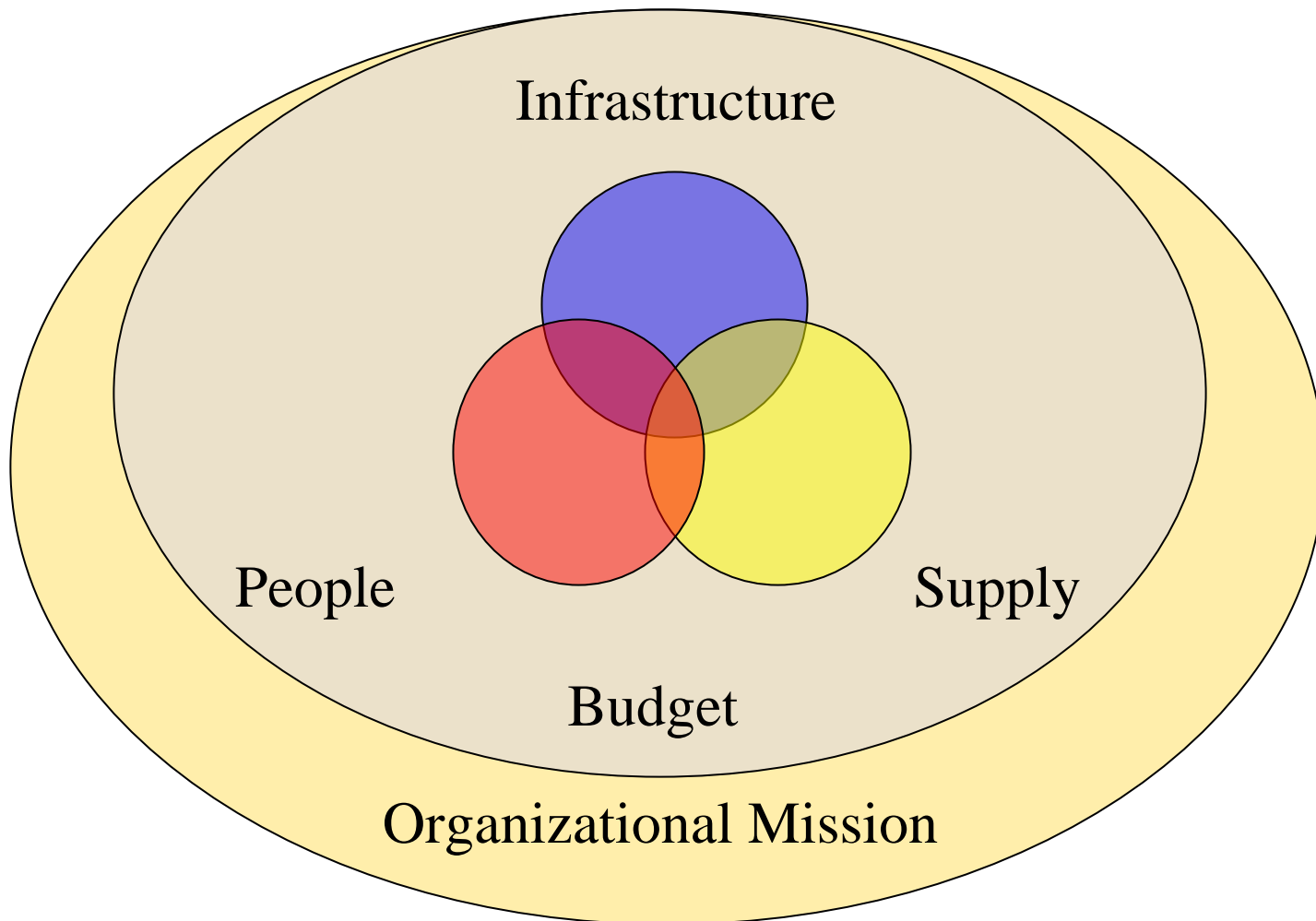
Begin with the End in Mind



Why?



The Big Picture





Some history for your consideration

- *LBNL Report: Market Trends in the U.S. ESCO Industry: Results from the NAESCO Database Project (LBNL-49601)*
 - Published May 2002
 - 1420 projects representing \$2.55 Billion investment through 2000.
 - 74% of projects are institutional sectors (schools, universities, hospitals and government)
 - Data collected from 62 companies
 - Projects:
 - 24% Lighting Only
 - 58% Lighting and Non Lighting Measures
 - 18% Non Lighting Only(<1% of these projects reported single measures).



- 1st Rochdale Cooperative Group
- Abacus Engineered Systems, Inc.
- Alliant
- Ameresco
- Building Controls & Services
- Carrier Corporation
- Castro Technical
- Chevron Energy Solutions LP
- Co-Energy
- Combined
- Con Edison Solutions
- Custom Energy
- DukeSolutions, Inc.
- EES, Inc
- EMCOR
- Energy @ Work, Inc.
- Energy Assets
- Energy Conservation & Supply
- Energy Control Inc. (ECI)
- Energy Masters
- Energy Services Group, LLC
- Energy Systems Group
- Energysolve.com
- EnerShop
- Engineering Economics, Inc
- Ennovate Corporation
- Enron Energy Services
- EnSave Energy Performance, Inc.
- EnviroActive
- EPS Capital Corp.
- Essco Inc.
- Evantage



- Exelon Solutions
- First Energy Services
- FPL Energy Services
- Honeywell
- Invensys
- Johnson Controls
- Kenetech
- LGE Enertech
- McKinstry Company
- Niagara Mohawk Energy Inc.
- Noresco
- Onsite Energy
- Perfection Services
- PSEG
- Reliant
- Select Energy Services/HEC
- Sempra
- Siemens
- SLI
- Southern Co Energy Solutions
- SRS
- TAC Americas
- TECO Solutions
- Texas Utilities Energy Services
- The Trane Company
- Trigen Energy Corporation
- Ucons, LLC
- Vermont Energy Investment Corp
- Vestar
- Viron
- Water & Energy Savings Corp



Where are the projects?

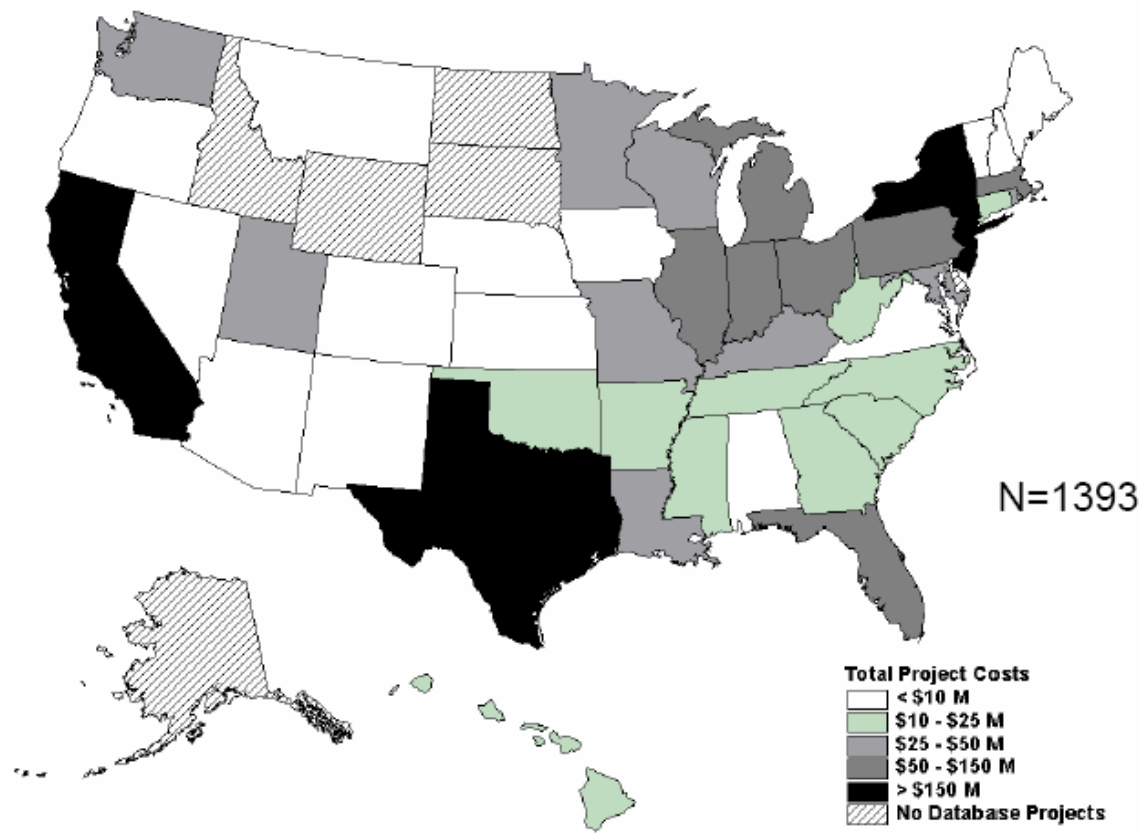


Figure 3-1. Project Activity by State



The big planning topics to consider...

- What's the project's goal?
- What to include in a project?
- How to select a project partner?
- How to finance the project?
- How to contract for services?
- How to ensure the savings are realized?



What's the project's goal?

- Remember Covey's Second Rule.
- The answer may not be the obvious one.
- May vary within the organization.
- Consider goals that are...
 - Technical
 - Financial
 - Organizational
 - People-focused



What to include in a project?

- Connect to the goal.
- Where am I today?
 - Current energy use
 - Financial Budget
 - Energy Supply
 - Facility conditions
 - Staffing
 - System Reliability
- How much money to invest?
 - Energy only or added capital
- What's the time horizon?
 - Immediate need or long term desires
 - Up to 20 years in state process
- Consider benchmarking.



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 - See [eligibility requirements](#) for use of the national energy performance rating system
 - See [How to Apply for the ENERGY STAR](#)
- Eligible space types, representing over 50% of US commercial floor space (with more to follow soon):
 - Offices (general offices, financial centers, bank branches, and courthouses)
 - K-12 Schools
 - Hospitals (acute care and children's)
 - Hotels and Motels
 - Medical Offices
 - Supermarkets
 - Residence Halls
 - Warehouses (refrigerated and non-refrigerated)

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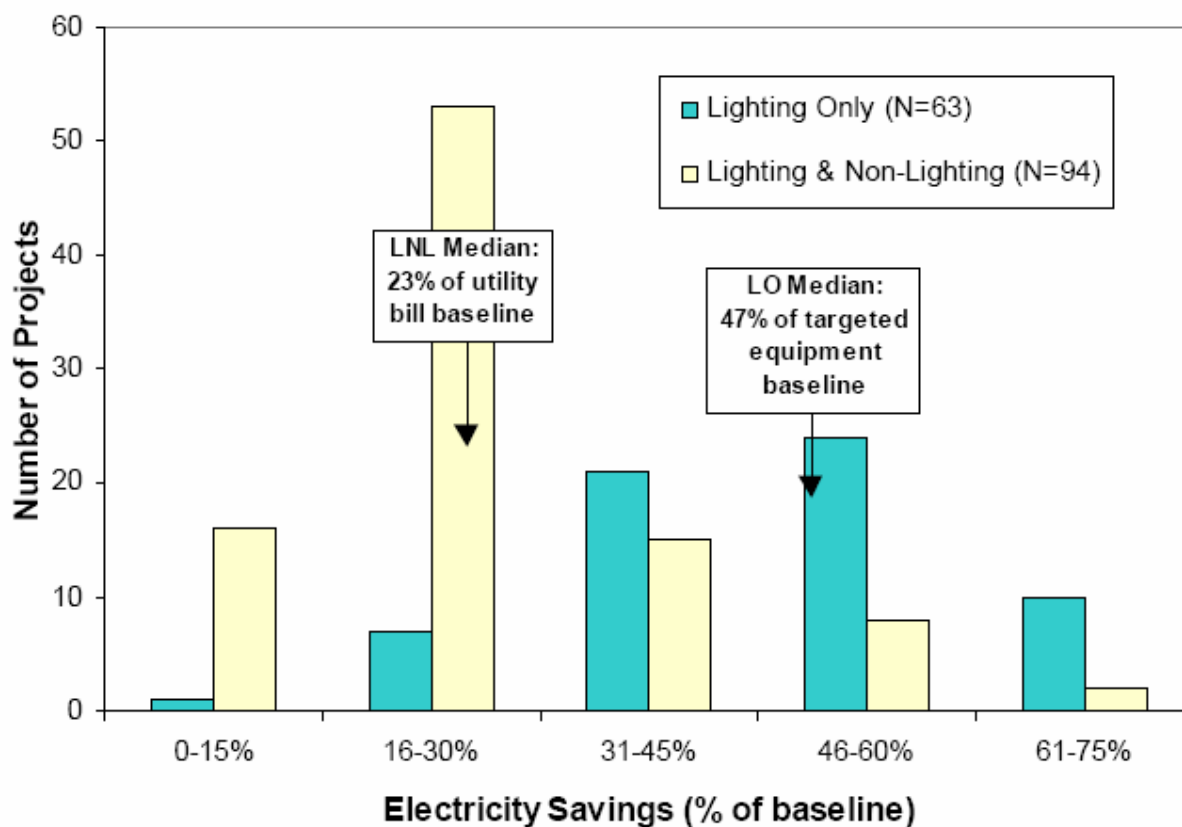


What is typically in an Energy Project?

Measure Category	Entire Database (N=1379)		Institutional Sector (N=1008)		Private Sector (N=359)	
	N	%	N	%	N	%
Lighting	1134	82%	859	85%	264	74%
Comfort Conditioning	936	68%	768	76%	163	45%
Motors/drives	320	23%	254	25%	64	18%
Water heaters	117	8%	101	10%	15	4%
Non-energy improvements	46	3%	46	5%	0	0%
Power supply	81	6%	63	6%	18	5%
Refrigeration	26	2%	15	1%	11	3%
Miscellaneous equipment & systems	41	3%	37	4%	4	1%
Industrial process improvements	23	2%	8	1%	15	4%
Other measures/strategies	287	21%	246	24%	41	11%
Plumbing products & fittings	132	10%	119	12%	13	4%



How much can you save?



NOTE: All projects in LO sample employ Equipment Targeted baseline metric;
LNL sample includes only Utility Bill baseline



A Necessary Step.

- Collect information in preparation for selection process.
For each building:
 - Utility data: 24 months of actual utility bills is ideal, but summary info is ok.
 - General building descriptions: year built, square feet, type of roof, construction material, etc.
 - Brief descriptions of equipment:
 - HVAC: boiler size, fuel, motors (hp), etc.
 - Lighting: types of systems and percentages of total system (i.e., T12 with magnetic ballasts in 60% of building)
 - Other systems to have considered, etc.
- State Form: Back of the envelope audit



How to select a project partner?

- What qualities are important to you in a partner?
 - Company size
 - Relevant experience
 - Location of staff
 - The people
 - Conflict resolution
 - Others?
- State process or your own?
- How will you make a choice?
- Get to know us ahead of time



How to finance a project?

- Internal or external sources of funds?
 - You can use your own money if you want.
- Separate the technical from the financial.
- Find the cheapest money available.
 - ESCOs will help find sources of money
 - ESCOs will provide money
 - State sources
 - Banks
 - Leases
 - Grants

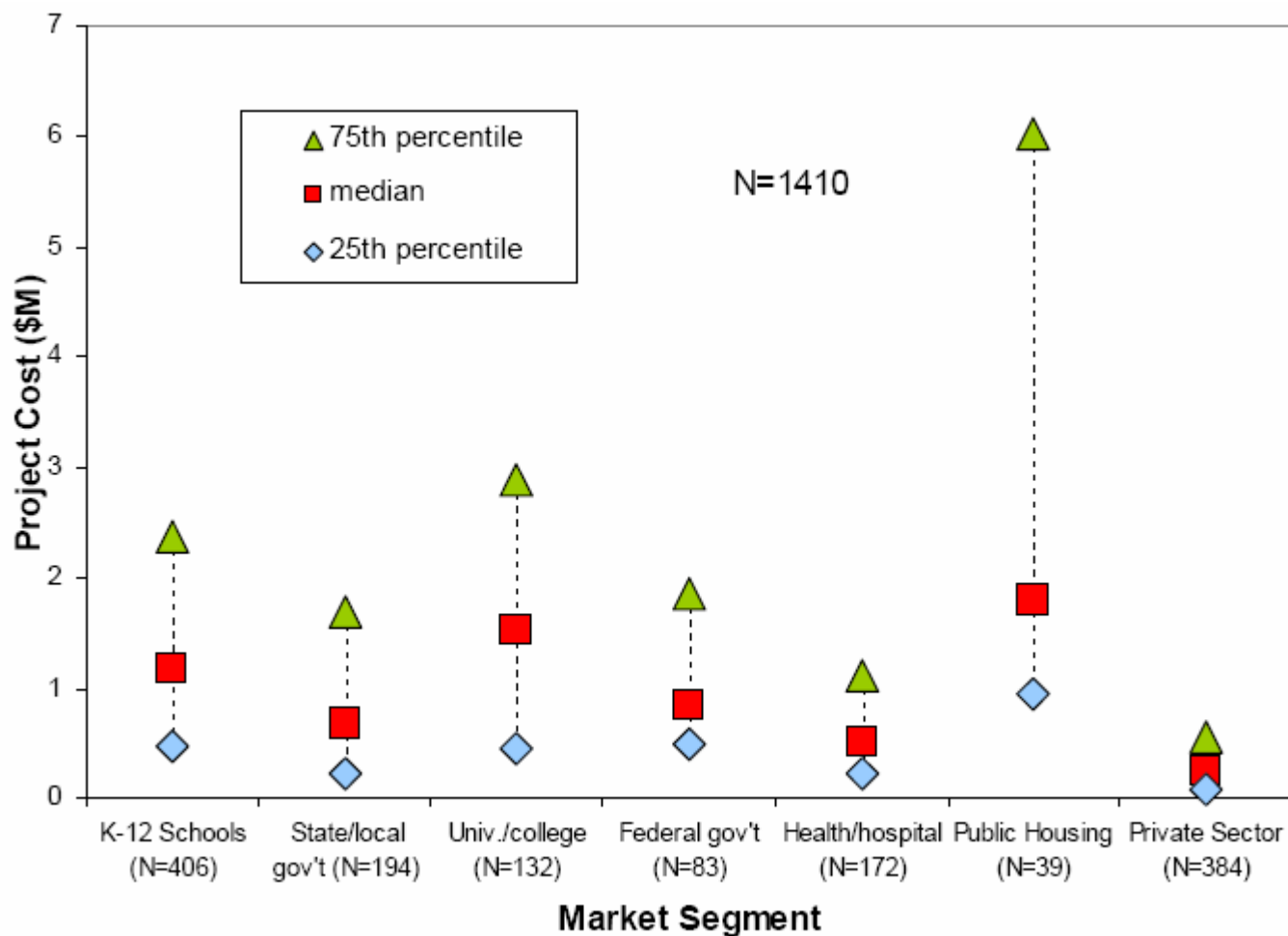


How much have project's cost in the past?

- Costs of a "turnkey" energy-efficiency services project:
 - *The cost to develop and construct the project including all development, engineering, installation, and construction financing costs as of the date of acceptance by customer (excludes future financing costs and ongoing project service costs such as maintenance and monitoring).*

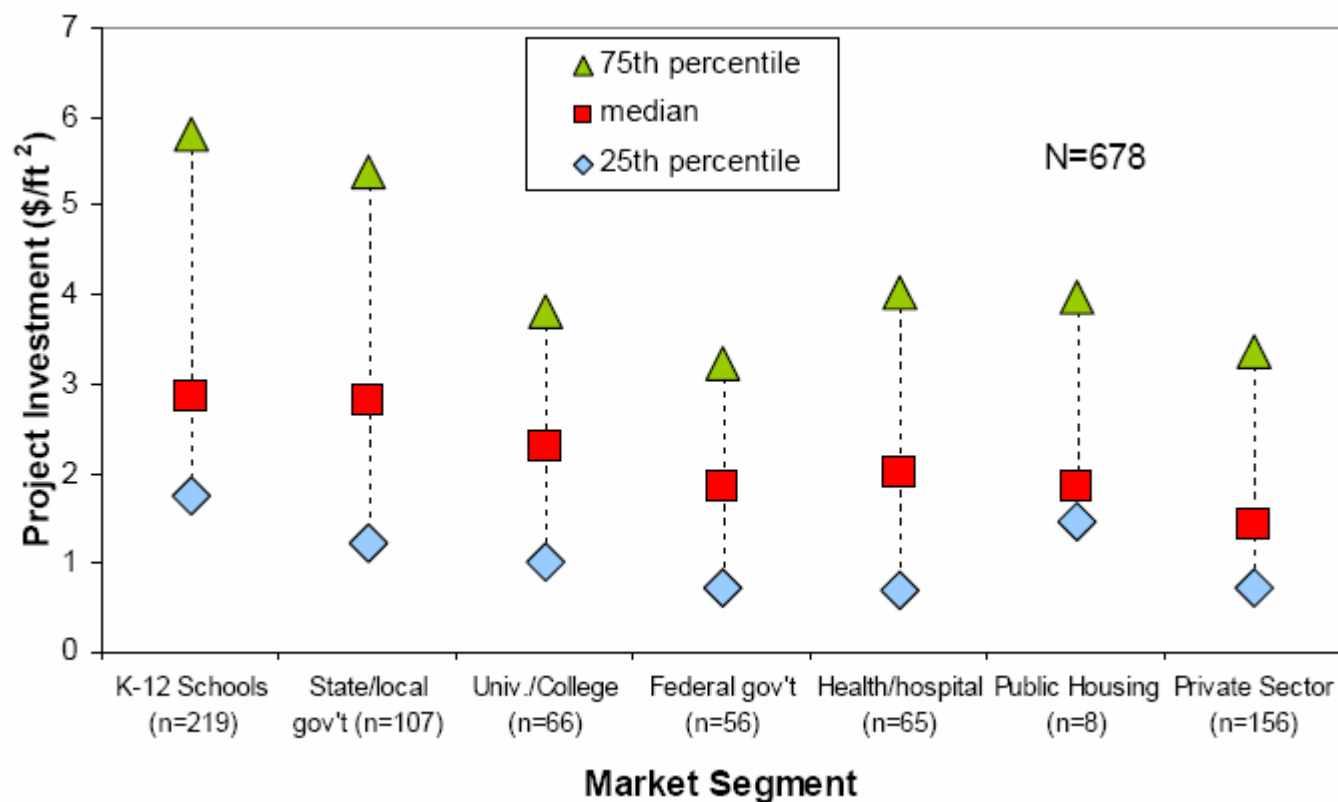


What is a typical project cost?





Project Investment (by square foot)



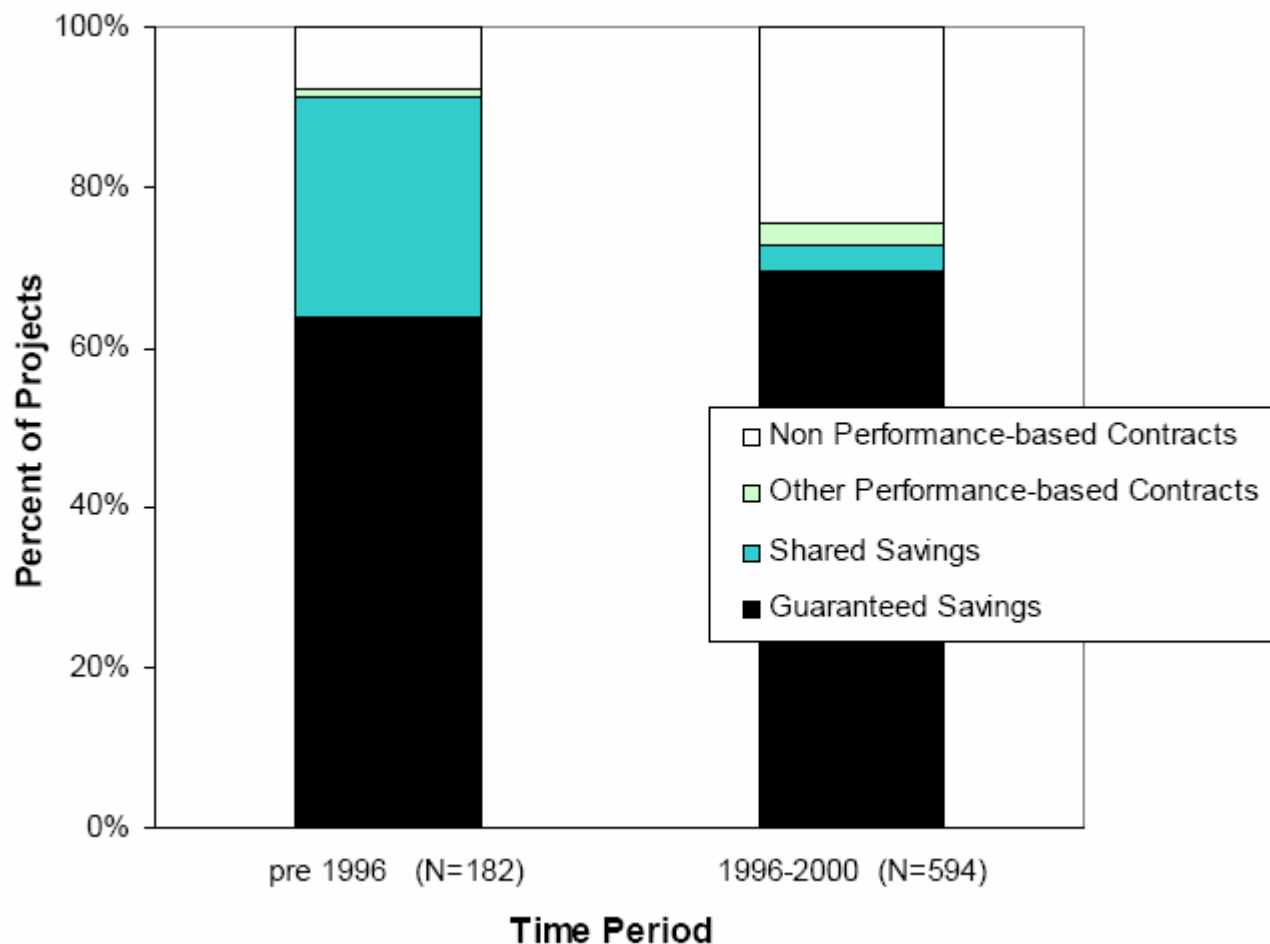


How to contract for energy services?

- Performance-based Contracts:
 - **Guaranteed savings:** ESCO guarantees minimum savings to customer.
 - **Guaranteed payout term:** ESCO retains savings until “paid out” or for specified period.
 - **Asset ownership/chauffage:** ESCO sells end use services to customer at specified prices over contract term.
 - **Shared savings:** Customer and ESCO share benefits of investment on a pre-determined basis over contract term .
 - **Pay-from-savings:** Percentage of customer’s savings applied against investment.
- Non Performance-based Contracts:
 - **Design/build:** ESCO develops project on turnkey basis; paid for services provided, may include some price cap linked to original proposal.
 - **Fee-for-service:** ESCO is reimbursed for various services provided during project development.
 - **Fixed price:** Cost of project to customer capped by ESCO at fixed price.



A trend towards customization



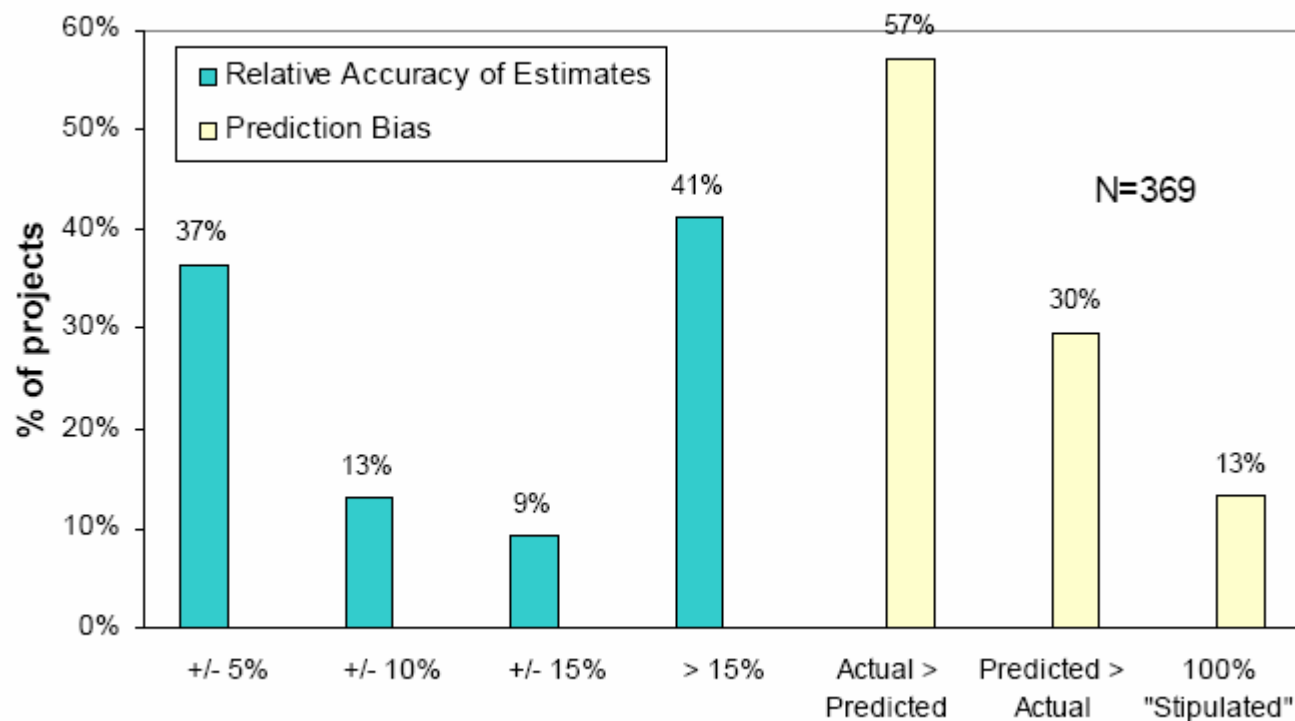


How to ensure the savings are realized?

- What's the plan for measurement and verification?
- How accurate is accurate enough?
- Measure or stipulate? Your choice.
- Follow the industry standard.
 - What is IPMVP anyway?
- Finalize before signing the contract, not afterwards.



Accuracy of ESCO Savings Prediction





Resources

- Energy Services Coalition
 - www.energyservicescoalition.org
- LBNL Report
 - repositories.cdlib.org/lbnl/LBNL-49601/
- Energy Star Portfolio Manager
 - www.energystar.gov
- Rebuild America's Solution Center
 - www.rebuild.org
- International Performance Monitoring and Verification Protocol
 - www.ipmvp.org
- Your colleagues and peers



It's Your Project!